

### REMARKS

By this amendment, claims 1-28 have been cancelled, and claims 29-55 have been added. Thus, claims 29-55 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

On pages 2-24 of the Office Action, the Examiner has presented prior art rejections against all of the claims 1-28. Claims 1-15 were, in particular, rejected as being unpatentable over Eleyan et al. (U.S. 6,144,370) in view of Hallen et al. (U.S. 6,518,890) or Eleyan in view of Hallen and one or more of Bruneau et al. (U.S. 2002/0054011), Ideno (JP 64-24447), Yokoji et al. (U.S. 6,909,422) and Malley et al. (U.S. 5,237,311); claims 16-27 were, in particular, rejected as being unpatentable over Eleyan in view of Mimlitch et al. (U.S. 5,171,978) or Eleyan in view of Mimlitch and one or more of Bruneau, Ideno, Tuovinen et al. (U.S. 6,509,888), Hallen, Yokoji and Malley; and claim 28 was, in particular, rejected as being unpatentable over Eleyan in view of Susumu (JP 2000-226641).

These rejections are believed moot in view of the cancellation of claims 1-28. Furthermore, these rejections are believed clearly inapplicable to the new claims 29-55, for the following reasons.

With exemplary reference to the drawing figures, new claim 29 sets forth a trackball device 41 comprising: a sphere 31 including magnetic material; a support (e.g. 32A-32C) configured to rotatably support the sphere 31; a rotation detector 37 configured to detect rotation of the sphere 31 and output a signal indicating rotation of the sphere 31; a controller 38 operably coupled to the rotation detector 37 and being configured to generate a specific output signal responsive to the signal from the rotation detector 37 indicating rotation of the sphere 31; and an informer including an electromagnet 33; wherein the sphere 31 is disposed in a magnetic flux circuit generated by the electromagnet 33, and the informer is operable to change a friction force of the sphere 31 with respect to the support (32A-32C) by causing the electromagnet 33 to generate a magnetic attractive force to influence the sphere 31 based on the specific output signal from the controller 38.

New independent claim 41 is directed to an input device which includes a trackball device having all of the characteristics of the trackball device recited in claim 29. Similarly, new independent claim 44 is directed to a vehicle including a trackball device having all of the characteristics of the trackball device recited in claim 29.

Thus, according to the independent claims 29, 41 and 44, a trackball device of the present invention is configured so that the informer (which includes the electromagnet 33) is operable to change a friction force of the sphere 31 with respect to the support 32A-32C by causing the electromagnet 33 to generate a magnetic attractive force to influence the sphere 31 based on an output signal from the controller. This feature of the present invention is described at, for example, page 10, line 22 - page 11, line 10 and page 12, lines 13-23 of the substitute specification filed December 27, 2006.

In contrast to the present invention as recited in claims 29, 41 and 44, the Eleyan patent discloses a trackball control system which, in the embodiment shown in Fig. 8, includes a sphere 20 with cylindrical magnets 100, a support (108, 36, 94), an encoder 94, a controller configured to generate an output signal responsive to a signal from the rotation detector, and an informer including electromagnetic pole pieces 106 that is configured to generate information responsive to rotation of the sphere, but the Eleyan patent does not disclose or suggest that the informer 106 of Eleyan is operable to change a friction force of the sphere 20 with respect to the support (108, 36, 94) by causing the electromagnetic pole pieces 106 to generate a magnetic attractive force to influence the sphere.

Rather, instead of changing a friction force of the sphere with respect to the support, as required by claims 29, 41 and 44, the Eleyan arrangement is such that plural cylindrical magnets 100 are provided in the trackball 20 and have poles disposed in a specific pattern (illustrated in Fig. 12 and described, for example, at column 8, lines 6-25) effective to allow sequential energization of electromagnets a-j (106) to provide stopping, damping and movement of the trackball. The damping of the movement of the trackball is not disclosed as being caused by a change in frictional force between the ball and the support, but is rather caused by selective

sequential energization of the electromagnets to cause rotation of the trackball to give the feeling to the user of damping of the movement (see, for example, column 8, lines 29-57).

Accordingly, it is believed apparent that the Eleyan reference does not disclose or suggest the invention as claimed in claims 29, 41 and 44. The Hallen patent was cited by the Examiner for disclosing a rotating disc 150 including magnetic material, a support 170 configured to rotatably support the disc, an informer 115 including an electromagnet having a core with first and second ends, wherein the support includes a first support member (left arm of 170), and a second supporting member (right arm of 170). However, the Hallen patent provides no teaching or suggestion that would have obviated the above-discussed shortcomings of the Eleyan patent.

The Examiner cited the Mimlitch patent for disclosing a trackball device wherein a permanent magnet 45 is configured to have a magnetic field that influences a sphere 11 so as to force a support 49 against the sphere. However, the Mimlitch patent also provides no teaching or suggestion that would have obviated the above-discussed shortcomings of the Eleyan reference.

The Examiner also cited the Bruneau, Ideno, Yokoji, Mailey and Tuovinen references for disclosing various individual features recited in individual claims of the previous claims 1-28. However, these additional references also clearly fail to provide a disclosure or suggestion that would have obviated the above-discussed shortcomings of the Eleyan reference.

Accordingly, for the above reasons, it is believed to be apparent that the inventions recited in the independent claims 29, 41 and 44 are not disclosed or suggested by the Eleyan reference, the Hallen reference, the Mimlitch reference or any of the references of record taken either individually or in combination. Therefore, it is respectfully submitted that claims 29, 41 and 44, as well as the claims depending therefrom, are clearly allowable over the prior art of record

Next, new independent claim 55 is identical to previous claim 28, except that, instead of reciting that the sphere (31) is formed of one of Martensite stainless steel and ferrite stainless steel, claim 55 now recites a sphere consisting of (made only of) Martensite stainless steel and ferrite stainless steel. Claim 28 was previously rejected as being unpatentable over Eleyan in

view of Susumu (JP 2000-226641). The Examiner acknowledged that the Eleyan reference does not disclose that the sphere is formed of one of Martensite stainless steel and ferrite stainless steel and, accordingly, cited the Susumu reference for disclosing "forming small spheres out of Martensite stainless steel." However, if the Eleyan sphere was modified to be made only of one of Martensite stainless steel and ferrite stainless steel, the Eleyan electromagnet trackball device would clearly not work in the intended manner as described, for example, at page 8, lines 6-57 of Eleyan. Accordingly, with claim 55 now reciting that the sphere 31 consists of one of Martensite stainless steel and ferrite stainless steel, it is submitted to be apparent that a person having ordinary skill in the art would not have found it obvious to modify the Eleyan arrangement in view of the prior art references of record in such a manner as to result in or otherwise render obvious the present invention of claim 55. Therefore, it is respectfully submitted that claim 55 is also clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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